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(54) **SIMULATION-BASED ESTIMATION OF ELASTICITY PARAMETERS AND USE OF SAME FOR NON-INVASIVE CANCER DETECTION AND CANCER STAGING**

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(58) **Field of Classification Search**
None
See application file for complete search history.

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(57)   **ABSTRACT**

Simulation-based estimation of elasticity parameters and use of same for non-invasive cancer detection and cancer staging are disclosed. According to one aspect, a method for simulation-based estimation of elasticity parameters includes constructing a 3D model of an object comprising biological tissue, the model having a first shape and an elasticity value. A simulation iteration is then performed, which includes simulating the application of an external force to the model, causing the model to have a second shape, measuring the difference between the second shape and a target shape, and determining whether the measured difference between the second shape and the target shape is within a threshold of error. If the measured difference is not within the threshold of error, the process performs additional
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